CLAIMS

1. A method of forming at least one doped layer of a thyristor comprising:

providing a semiconductor crystal, the crystal having a crystal structure and being used as at least one doped layer of a thyristor; and

introducing impurities in the crystal structure after the crystal structure has been formed.

2. The method according to claim 1, wherein the act of introducing impurities includes introducing impurities using ion implantation.

3. The method according to claim 1, wherein the semiconductor crystal is made of a single crystalline carbide material.

4. The method according to claim 2, wherein the act of introducing impurities using ion implantation includes implanting phosphorus donors using high energy implantation.

5. The method according to claim 4, wherein the act of implanting phosphorus donors is performed at approximately 500 degrees C, and the crystal is annealed at approximately 1200 degrees C in argon.

6. The method according to claim 1, wherein the semiconductor crystal is of a first conductivity type and the method includes defining a plurality of layers, the act of defining a plurality of layers comprises:

defining a first layer of semiconductor material of a first conductivity type;

defining a second layer of semiconductor material of a second conductivity type in contact with the first layer;

defining a third layer of semiconductor material of the second conductivity type in contact with the second layer;

defining a fourth layer of semiconductor material of a first conductivity type in contact with the fourth layer; and

defining a fifth layer of semiconductor material of a second conductivity type in contact with the fourth layer.

7. The method according to claim 6, further comprising doping at least one of the plurality of layers by ion implantation.

8. The method according to claim 6, wherein the first layer is made of N+ material.

9. The method according to claim 6, wherein the second layer is made of P material.

10. The method according to claim 6, wherein the third layer is made of P- material.

11. The method according to claim 6, wherein the fourth layer is made of N material.

12. The method according to claim 6, wherein the fifth layer is made of P+ material.

13. The method according to claim 11, wherein the fourth layer is formed using ion implantation.

14. A thyristor comprising:

at least one doped layer, the layer comprising a semiconductor crystal having a crystal structure, the at least one doped layer being formed by introducing impurities in the crystal structure after the crystal structure has been formed.

15. The method according to claim 14, wherein the thyristor is manufactured from a single crystalline silicon carbide.

16. The method according to claim 14, wherein impurities are introduced by ion implantation.